

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. R2-2003-0113

ADOPTION OF FINAL SITE CLEANUP REQUIREMENTS AND RESCISSION OF
ORDER NO. 97-122 FOR:

MICREL, INC.
SIEMENS MICROELECTRONICS, INC.,
SMI HOLDING, LLC, AND
PASTORIA LIMITED PARTNERSHIP

for the property located at

639 NORTH PASTORIA AVENUE
SUNNYVALE
SANTA CLARA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter Board), finds that:

1. **Site Location:** The Site is located at 639 North Pastoria Avenue in Sunnyvale on flat to gently sloping terrain, on the southwestern side of San Francisco Bay (see Site Map). The Site consists of single story buildings, paved parking surfaces, and landscaping. The area is a commercial/industrial area and is primarily developed with low rise buildings typical of the electronics industry of Santa Clara County. The majority of these buildings were constructed in the late 1960s and early 1970s.

The Site is one of several VOC source areas located within the North Pastoria-Almanor Avenue Area (NP-AA Area), which is generally bounded by Vaqueros Avenue and Mary Avenue to the east and west and Del Rey Avenue and Almanor Avenue to the south and north. Highway 101 lies approximately 2000 feet to the north.

2. **Site History:** Pastoria Limited Partnership (PLP) owns the Site. The property was developed in 1970 and has been used for the manufacture of semiconductors since 1971. Litronix, Inc. conducted manufacturing operations at the Site from 1972 until 1977.

Litronix, Inc., and its wholly owned subsidiary, Advanced LSI Tech, Inc., conducted manufacturing operations at the Site from 1972 until 1978. By 1978, Siemens Corporation had purchased the stock of Litronix, Inc. The assets of Litronix, Inc. were acquired by Siemens Microelectronics, Inc. (SMI), formerly Siemens Components, Inc., a wholly owned subsidiary of Siemens Corporation. In 1999 Siemens Microelectronics, Inc. was merged into SMI Holdings, LLC. In 1981, Micrel, Inc.

purchased the assets of the business from Advanced LSI Tech, Inc. and conducted manufacturing operations at the site from 1981 until 1994. A 500 gallon underground waste solvent storage tank was installed at the Site by 1977 and was replaced in 1979. The replacement tank was removed in 1985. Investigation has shown that the tanks were a main source of soil and groundwater pollution at the Site.

3. **Named Dischargers:**

Micrel, Inc. is named as a discharger because as a tenant and operator at the Site, they used and stored chemicals that have polluted soil and groundwater at the Site.

Siemens Microelectronics, Inc. is named as a discharger because Siemens Microelectronics, Inc. is the successor in interest to Litronix, Inc., a tenant and operator at the Site that used and stored chemicals that have polluted soil and groundwater at the Site.

SMI Holding, LLC is named as a discharger because Siemens Microelectronics, Inc. was merged into SMI Holding.

PLP is named as a discharger because of its ownership and control of the property. PLP will be responsible for compliance only if the Board or Executive Officer finds that other named dischargers have failed to comply with the requirements of this Order.

If additional information is submitted indicating that other parties caused or permitted any waste to be discharged on the Site where it entered or could have entered waters of the State, the Board will consider adding that party's name to this order.

4. **Regulatory Status:** This site is subject to the following Board orders:

- o Site Cleanup Requirements (Order No. 97-122) adopted October 15, 1997
- o NPDES General Permit (Order No. 99-051) adopted on July 21, 1999

5. **Site Hydrogeology:** The Site is located in the Santa Clara Valley, a structural basin filled with marine and alluvial sediments. The coarser deposits are probably the result of deposition in or near stream channels that drain the surrounding highlands. Finer grain deposits result from a variety of conditions with the eventual result of a heterogenous sequence of interbedded sands, silts, and clays. Municipal water supply wells tap an extensive deep regional confined aquifer that lies generally greater than 200 feet below ground surface (bgs). A thick, relatively impermeable aquitard separates this deep confined aquifer from a complex series of discontinuous aquifers and aquitards that may extend up to within a few feet of the ground surface. The subsurface at the Site has been investigated to a depth of 100 feet. Most of the

investigation has focused on the top 50 feet. The Site is underlain by unconsolidated deposits of primarily clay and silt, with interbedded lenses of sand and sand/gravel mixtures. Sand and gravel lenses range in thickness from a few inches to more than 5 feet. These deposits have been divided into several water bearing zones. The A zone lies generally between 10 feet and 25 feet bgs. The B zone lies generally between 25 and 45 feet bgs. The B zone is further divided into two subzones, the upper B zone (approximately 25-35 feet bgs, designated as B1), and the lower B zone (approximately 35-45 feet bgs, designated as B2). The B1 zone has higher hydraulic conductivity and more extensive, continuous layers of permeable sediments. The C zone extends from approximately 50 to 65 feet bgs. Groundwater flow direction in the A zone is generally northeasterly, in the B zone generally easterly.

6. **Remedial Investigation:** A number of soil and groundwater investigations have been carried out at this site and the NP-AA Area by SMI beginning in 1984. These investigations have characterized soil and groundwater contamination on the site and have characterized groundwater contamination offsite. In addition to the onsite sources of contamination, the groundwater investigation indicates that there are additional offsite sources of VOCs that contribute to a commingled groundwater pollutant plume that extends downgradient. As a result of investigations done in 1996 and 1997 which identified these other contributors, the scope of the offsite remediation being conducted by SMI has been reduced. Currently, active remediation is being done only on the onsite and nearsite areas (639 and 655 N. Pastoria).

The source area for soil and groundwater pollution originating on the Site is in the area of the former waste solvent underground storage tank and in the area of the former acid waste neutralization system and associated piping and in the former southern sump area. The primary contaminants found in groundwater on the Site are TCE and DCE (trans and cis 1,2-DCE). DCE is the contaminant found at the highest concentrations. Groundwater contamination is found in both the A and B zones. Contamination is generally highest at depths between approximately 20 to 40 feet bgs with maximum concentrations generally encountered in the B1 zone between depths of 25 to 34 feet bgs. Concentrations of VOCs in the A-zone have been reduced significantly due to the extraction and treatment of groundwater and are currently at about 200-300 ug/l. Currently, total target VOC concentrations in groundwater at the Site in the B1-zone are found at up to approximately 2,800 ug/l. Total target VOC concentrations in the B2 zone are found at up to about 200 ug/l.

7. **Adjacent Sites:** A number of different pollutant sources have been identified in the NP-AA area. Two significant groundwater pollutant plumes have been identified which have originated downgradient and cross-gradient from the Site. Groundwater at and downgradient of 645 and 675 Almanor Avenue is impacted with VOCs. These sites are downgradient of the Site. Previously SMI had conducted offsite groundwater extraction

and treatment from this area as part of their overall remediation of the SMI Site pollutant plume. As a result of the discovery of these other pollutant sources in this downgradient area which are not related to the SMI Site, SMI was allowed to cease groundwater remediation in this area. In addition, there is another source of VOC impacted groundwater that has been identified upgradient/crossgradient of the Site at 610 North Pastoria Avenue. The contamination from 610 North Pastoria may commingle with contamination from the SMI Site downgradient of both sites. Intersil, Inc. (the responsible party for 610 North Pastoria) has conducted remedial activities which included source removal and containment at 610 North Pastoria. The 610 North Pastoria Site has been closed. SMI has agreed to assume responsibility for the remediation of contaminants, if any, that have may have migrated from 610 North Pastoria and commingled with contamination from the Site. In addition there is a plume of VOC impacted groundwater that has been identified as moving onto the 610 North Pastoria location from further upgradient.

Also, there is a plume of VOC-impacted groundwater that is west of the Site (west of Palomar Avenue and east of Mary Avenue), which is crossgradient of the Site. The source of this contamination is unknown.

8. **Interim Remedial Measures:** Remedial measures began at the site in 1985 when Micrel removed an underground spent solvent storage tank and excavated approximately 50 cubic yards of soil polluted with VOCs (primarily ethylbenzene, xylenes, and TCE). In 1987 SMI removed and disposed of approximately 100 cubic yards of VOC-impacted soil from the general area of the former waste storage yard. In January 1991 a soil-gas extraction system was placed online to further remediate unsaturated soils at the Site. The soil-gas extraction system was taken off-line in May 1995 as it was no longer removing significant amounts of VOCs from the unsaturated soils. In December of 1995, following the Micrel Facility closure, approximately 200 cubic yards of additional soil were excavated from the area of the former acid neutralization system piping and the southern sump. Analytical results of confirmation soil samples collected from all potential and identified source areas at the Site (including investigations within the building) indicated that the soil-gas and excavation remedial activities were effective.

Between 1987 and 1989, a groundwater extraction and treatment system was installed onsite and offsite by SMI to capture and treat VOC-impacted A- and B-zone groundwater. The A zone extraction system consisted of four on or near-site extraction wells and six offsite extraction wells (as far as 2000 feet downgradient from the Site). The B-zone extraction system consisted of one near-site well. In 1995 significant VOC sources were discovered at 645 and 675 Almanor Avenue, and also west of Palomar Avenue (upgradient of Almanor Avenue). In July 1995, SMI was authorized to discontinue all groundwater extraction and monitoring north of Almanor Avenue based

on these discoveries. Three of the offsite extraction wells were curtailed. In November 1998 SMI was authorized to discontinue groundwater extraction from the remaining three off-site extraction wells. SMI continued to extract and treat groundwater from the on-/near-site extraction wells (A-zone extraction wells and one B-zone extraction well). In May 2000, SMI was allowed to cease A-zone groundwater extraction. Board staff concurred with SMI that A-zone groundwater concentrations had reached asymptotic levels and significant reductions in VOC mass were no longer occurring. Additional areas of B-zone contamination of DCE in the onsite and near offsite area were discovered in 1998, and remediation began to be focused on the B-zone beneath the onsite and near-site area (639 and 655 North Pastoria Avenue).

9. **Feasibility Study:** In December 1998, SMI submitted a report which concluded that groundwater extraction had been effective in reducing VOC concentrations in A-zone groundwater at the Site by an order of magnitude, but that the efficiency of VOC removal had declined significantly. To address B-zone contamination, SMI proposed a pilot test of in-situ chemical oxidation to determine if this method of remediation could be effective at the Site. The pilot test results were promising and SMI proposed full scale in-situ chemical oxidation using potassium permanganate. SMI submitted a July 1999 Treatability Study that concluded that chemical oxidation using potassium permanganate could be effective in reducing VOC levels in B-zone groundwater at the Site. SMI has implemented this technology for remediation of B-zone groundwater at the Site.
10. **Cleanup Plan:** SMI began full scale in-situ chemical oxidation using potassium permanganate in December 2001. Permanganate solution is injected quarterly into the B zone groundwater via four B-1 zone injection wells and five B-2 zone injection wells. Groundwater is continuously extracted from one B-1 zone extraction well. This helps to both contain the VOC impacted groundwater plume and to enhance the flow-through of groundwater through the impacted areas. A portion of the extracted groundwater is then continually reinjected into the B zone to provide a continuous low dose flow-through of the permanganate solution. In the 2003 Final Remedial Action Plan SMI proposes to continue permanganate injection until VOC levels decline to 500 ug/l in B zone groundwater. This level is selected because it is believed that chemical oxidation can reduce the VOC levels this far and because SMI believes background concentrations of VOCs in the area of the Site are at this level. After achieving this interim remediation goal, SMI proposes to evaluate the effectiveness of pollutant removal and either continue with chemical oxidation if significant reduction in pollutant mass is still occurring, or if chemical oxidation is no longer beneficial, cease the chemical oxidation program and begin a program of monitored natural attenuation. Monitoring results indicate that chemical oxidation is causing decreases in VOC concentrations in the majority of wells sampled. It is estimated that the interim remediation goal will be achieved within 3-5 years.

SMI has been allowed to cease active A-zone remediation and current active remediation is directed to toward the B-zone. However, permanganate injected into the B-zone also shows up in the A-zone due to the relative permeability of soils in the A and B zones. This means that additional remediation of A-zone groundwater may take place via chemical oxidation.

11. **Risk Assessment:** A risk assessment has been performed for this Site. The only complete exposure pathway identified is VOCs volatilizing from groundwater and entering overlying buildings. The Department of Toxic Substances Control Vapor Transport Model was used to estimate the risk to hypothetical receptor populations. The following table summarizes the exposure scenarios and the corresponding estimated risk.

Exposure Scenario	Regulatory Threshold Cancer Risk Value	Estimated Cancer Risk	Estimated Hazard Index
On-site Commercial/Industrial Worker	1×10^{-6}	2×10^{-7}	2×10^{-2}
On-site Hypothetical Residential Adult Receptor	1×10^{-6}	2×10^{-7}	3×10^{-2}
On-site Hypothetical Residential Child Receptor	1×10^{-6}	1×10^{-7}	6×10^{-3}

For comparison, the Board considers the following risks to be acceptable at remediation sites: a cumulative hazard index of 1.0 or less for non-carcinogens and, for carcinogens, a cumulative excess cancer risk of 10^{-6} or less (residential scenario) or 10^{-5} or less (commercial/industrial scenario).

Should groundwater be used pending full remediation, excessive risks at the Site may exist based on exposure pathways not evaluated in the risk assessment performed for this Site. Institutional constraints, therefore, are appropriate to limit on-site exposure. Institutional constraints would include a deed restriction that notifies future owners of sub-surface contamination and which prohibits the use of shallow groundwater beneath the site as a source of drinking water until cleanup standards are met. Certain sensitive uses of the site such as residences and daycare centers are also prohibited without an additional risk assessment which includes soil gas sampling.

12. Basis for Cleanup Standards

- a. **General:** State Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California," applies to this discharge

and requires attainment of background levels of water quality, or the highest level of water quality which is reasonable if background levels of water quality cannot be restored. Cleanup levels other than background must be consistent with the maximum benefit to the people of the State, not unreasonably affect present and anticipated beneficial uses of such water, and not result in exceedance of applicable water quality objectives. The previously-cited cleanup plan confirms the Board's initial conclusion that background levels of water quality cannot be restored. Current remedial technology cannot remove all VOCs from a groundwater aquifer. This order and its requirements are consistent with Resolution No. 68-16.

State Board Resolution No. 92-49, "Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304," applies to this discharge. This order and its requirements are consistent with the provisions of Resolution No. 92-49, as amended.

- b. **Beneficial Uses:** The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on June 21, 1995. This updated and consolidated plan represents the Board's master water quality control planning document. The revised Basin Plan was approved by the State Water Resources Control Board and the Office of Administrative Law on July 20, 1995, and November 13, 1995, respectively. A summary of regulatory provisions is contained in Title 23, California Code of Regulations, Section 3912. The Basin Plan defines beneficial uses and water quality objectives for waters of the State, including surface waters and groundwaters.

Board Resolution No. 89-39, "Sources of Drinking Water," defines potential sources of drinking water to include all groundwater in the region, with limited exceptions for areas of high TDS, low yield, or naturally-high contaminant levels. Groundwater underlying and adjacent to the Site qualifies as a potential source of drinking water.

The Basin Plan designates the following potential beneficial uses of groundwater underlying and adjacent to the Site:

- o Municipal and domestic water supply
- o Industrial process water supply
- o Industrial service water supply
- o Agricultural water supply

At present, there is no known use of shallow groundwater underlying the site for the above purposes. The deep regional aquifer is utilized for these purposes.

- c. **Basis for Groundwater Cleanup Standards:** The groundwater cleanup standards for the site are based on applicable water quality objectives and are the more stringent of EPA and California primary maximum contaminant levels (MCLs). Cleanup to this level will result in acceptable residual risk to humans.
 - d. **Basis for Soil Cleanup Standards:** Soil has been cleaned up to acceptable levels, hence soil cleanup standards are not included in this Order.
- 13. **Future Changes to Cleanup Standards:** The goal of this remedial action is to restore the beneficial uses of groundwater underlying and adjacent to the Site. Results from other sites suggest that full restoration of beneficial uses to groundwater as a result of active remediation at this Site may not be possible. If full restoration of beneficial uses is not technologically nor economically achievable within a reasonable period of time, then the discharger may request modification to the cleanup standards or establishment of a containment zone, a limited groundwater pollution zone where water quality objectives are exceeded. Conversely, if new technical information indicates that cleanup standards can be surpassed, the Board may decide that further cleanup actions should be taken.
 - 14. **Reuse or Disposal of Extracted Groundwater:** Board Resolution No. 88-160 allows discharges of extracted, treated groundwater from site cleanups to surface waters only if it has been demonstrated that neither reclamation nor discharge to the sanitary sewer is technically and economically feasible.
 - 15. **Basis for 13304 Order:** The discharger has caused or permitted waste to be discharged or deposited where it is or probably will be discharged into waters of the State and creates or threatens to create a condition of pollution or nuisance.
 - 16. **Cost Recovery:** Pursuant to California Water Code Section 13304, the discharger is hereby notified that the Board is entitled to, and may seek reimbursement for, all reasonable costs actually incurred by the Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this order.
 - 17. **CEQA:** This action is an order to enforce the laws and regulations administered by the Board. As such, this action is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to Section 15321 of the Resources Agency Guidelines.
 - 18. **Notification:** The Board has notified the discharger and all interested agencies and persons of its intent under California Water Code Section 13304 to prescribe site

cleanup requirements for the discharge, and has provided them with an opportunity to submit their written comments.

19. **Public Hearing:** The Board, at a public meeting, heard and considered all comments pertaining to this discharge.

IT IS HEREBY ORDERED, pursuant to Section 13304 of the California Water Code, that the discharger (or its agents, successors, or assigns) shall cleanup and abate the effects described in the above findings as follows:

A. PROHIBITIONS

1. The discharge of wastes or hazardous substances in a manner which will degrade water quality or adversely affect beneficial uses of waters of the State is prohibited.
2. Further significant migration of wastes or hazardous substances through subsurface transport to waters of the State is prohibited.
3. Activities associated with the subsurface investigation and cleanup which will cause significant adverse migration of wastes or hazardous substances are prohibited.

B. CLEANUP PLAN AND CLEANUP STANDARDS

1. **Implement Cleanup Plan:** The discharger shall implement the cleanup plan described in finding 10.
2. **Groundwater Cleanup Standards:** The following groundwater cleanup standards shall be met in all wells identified in the Self-Monitoring Program:

Constituent	Standard (ug/l)	Basis
Trichloroethene (TCE)	5	MCL
Cis-1,2-Dichloroethene (cis-1,2-DCE)	6	MCL
Trans-1,2-Dichloroethene (trans-1,2-DCE)	5	MCL
Vinyl Chloride	0.5	MCL

C. TASKS

1. PROPOSED INSTITUTIONAL CONSTRAINTS

COMPLIANCE DATE: April 15, 2004

Submit a technical report acceptable to the Executive Officer documenting procedures to be used by the discharger to prevent or minimize human exposure to soil and groundwater contamination prior to meeting cleanup standards. Such procedures shall include the implementation of a deed restriction that prohibits the use of shallow groundwater as a source of drinking water and prohibits certain sensitive uses including residences and day care centers without an additional risk evaluation.

2. IMPLEMENTATION OF INSTITUTIONAL CONSTRAINTS

COMPLIANCE DATE: 90 days after Executive Officer approval

Submit a technical report acceptable to the Executive Officer documenting that the proposed institutional constraints have been implemented.

3. FIVE-YEAR STATUS REPORT

COMPLIANCE DATE: December 15, 2008

Submit a technical report acceptable to the Executive Officer evaluating the effectiveness of the approved cleanup plan. The report should include:

- a. Summary of effectiveness in controlling contaminant migration and protecting human health and the environment
- b. Comparison of contaminant concentration trends with cleanup standards
- c. Comparison of anticipated versus actual costs of cleanup activities
- d. Performance data (e.g. groundwater volume extracted, chemical mass removed, mass removed per million gallons extracted)
- e. Cost effectiveness data (e.g. cost per pound of contaminant removed)
- f. Summary of additional investigations (including results) and significant modifications to remediation systems
- g. Additional remedial actions proposed to meet cleanup standards (if applicable) including time schedule

If cleanup standards have not been met and are not projected to be met within a reasonable time, the report should assess the technical practicability of meeting cleanup standards and may propose an alternative cleanup strategy.

4. PROPOSED CURTAILMENT

COMPLIANCE DATE: 60 days prior to proposed curtailment

Submit a technical report acceptable to the Executive Officer containing a proposal to curtail remediation. Curtailment includes system closure (e.g. well abandonment), system suspension (e.g. cease extraction but wells retained), and significant system modification (e.g. major reduction in extraction rates, closure of individual extraction wells within extraction network). The report should include the rationale for curtailment. Proposals for final closure should demonstrate that cleanup standards have been met, contaminant concentrations are stable, and contaminant migration potential is minimal.

5. IMPLEMENTATION OF CURTAILMENT

COMPLIANCE DATE: 90 days after Executive Officer approval

Submit a technical report acceptable to the Executive Officer documenting completion of the tasks identified in Task 8.

6. EVALUATION OF NEW HEALTH CRITERIA

COMPLIANCE DATE: 90 days after requested
by Executive Officer

Submit a technical report acceptable to the Executive Officer evaluating the effect on the approved cleanup plan of revising one or more cleanup standards in response to revision of drinking water standards, maximum contaminant levels, or other health-based criteria.

7. EVALUATION OF NEW TECHNICAL INFORMATION

COMPLIANCE DATE: 90 days after requested
by Executive Officer

Submit a technical report acceptable to the Executive Officer evaluating new technical information which bears on the approved cleanup plan and cleanup standards for this site. In the case of a new cleanup technology, the report

should evaluate the technology using the same criteria used in the feasibility study. Such technical reports shall not be requested unless the Executive Officer determines that the new information is reasonably likely to warrant a revision in the approved cleanup plan or cleanup standards.

8. **Delayed Compliance:** If the discharger is delayed, interrupted, or prevented from meeting one or more of the completion dates specified for the above tasks, the discharger shall promptly notify the Executive Officer and the Board may consider revision to this Order.

D. PROVISIONS

1. **No Nuisance:** The storage, handling, treatment, or disposal of polluted soil or groundwater shall not create a nuisance as defined in California Water Code Section 13050(m).
2. **Good O&M:** The discharger shall maintain in good working order and operate as efficiently as possible any facility or control system installed to achieve compliance with the requirements of this Order.
3. **Cost Recovery:** The discharger shall be liable, pursuant to California Water Code Section 13304, to the Board for all reasonable costs actually incurred by the Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this Order. If the site addressed by this Order is enrolled in a State Board-managed reimbursement program, reimbursement shall be made pursuant to this Order and according to the procedures established in that program. Any disputes raised by the discharger over reimbursement amounts or methods used in that program shall be consistent with the dispute resolution procedures for that program.
4. **Access to Site and Records:** In accordance with California Water Code Section 13267(c), the discharger shall permit the Board or its authorized representative:
 - a. Entry upon premises in which any pollution source exists, or may potentially exist, or in which any required records are kept, which are relevant to this Order.
 - b. Access to copy any records required to be kept under the requirements of this Order.

- c. Inspection of any monitoring or remediation facilities installed in response to this Order.
 - d. Sampling of any groundwater or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the discharger.
5. **Self-Monitoring Program:** The discharger shall comply with the Self-Monitoring Program as attached to this Order and as may be amended by the Executive Officer.
6. **Contractor / Consultant Qualifications:** All technical documents shall be signed by and stamped with the seal of a California registered geologist, a California certified engineering geologist, or a California registered civil engineer. Groundwater cleanup status reports that do not contain isoconcentration maps and similar technical interpretations need not meet this requirement.
7. **Lab Qualifications:** All samples shall be analyzed by State-certified laboratories or laboratories accepted by the Board using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control (QA/QC) records for Board review. This provision does not apply to analyses that can only reasonably be performed on-site (e.g. temperature).
8. **Document Distribution:** Copies of all correspondence, technical reports, and other documents pertaining to compliance with this Order shall be provided to the following agencies:
- a. City of Sunnyvale
 - b. County of Santa Clara
 - c. Santa Clara Valley Water District
- The Executive Officer may modify this distribution list as needed.
9. **Reporting of Changed Owner or Operator:** The discharger shall file a technical report on any changes in site occupancy or ownership associated with the property described in this Order.
10. **Reporting of Hazardous Substance Release:** If any hazardous substance is discharged in or on any waters of the State, or discharged or deposited where it is, or probably will be, discharged in or on any waters of the State, the

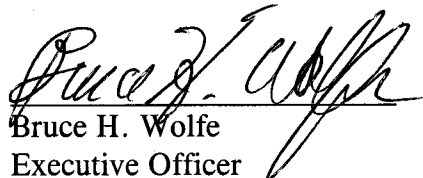
discharger shall report such discharge to the Regional Board by calling (510) 622-2300 during regular office hours (Monday through Friday, 8:00 to 5:00).

A written report shall be filed with the Board within five working days. The report shall describe: the nature of the hazardous substance, estimated quantity involved, duration of incident, cause of release, estimated size of affected area, nature of effect, corrective actions taken or planned, schedule of corrective actions planned, and persons/agencies notified.

This reporting is in addition to reporting to the Office of Emergency Services required pursuant to the Health and Safety Code.

11. **Secondarily-Responsible Discharger:** Within 60 days after being notified by the Executive Officer that other named dischargers have failed to comply with this order, PLP as property owner shall then be responsible for complying with this order. Task deadlines above will be automatically adjusted to add 60 days.
12. **Rescission of Existing Order:** This Order supercedes and rescinds Order No. 97-122.
13. **Periodic SCR Review:** The Board will review this Order periodically and may revise it when necessary.

I, Bruce H. Wolfe, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on December 3, 2003.

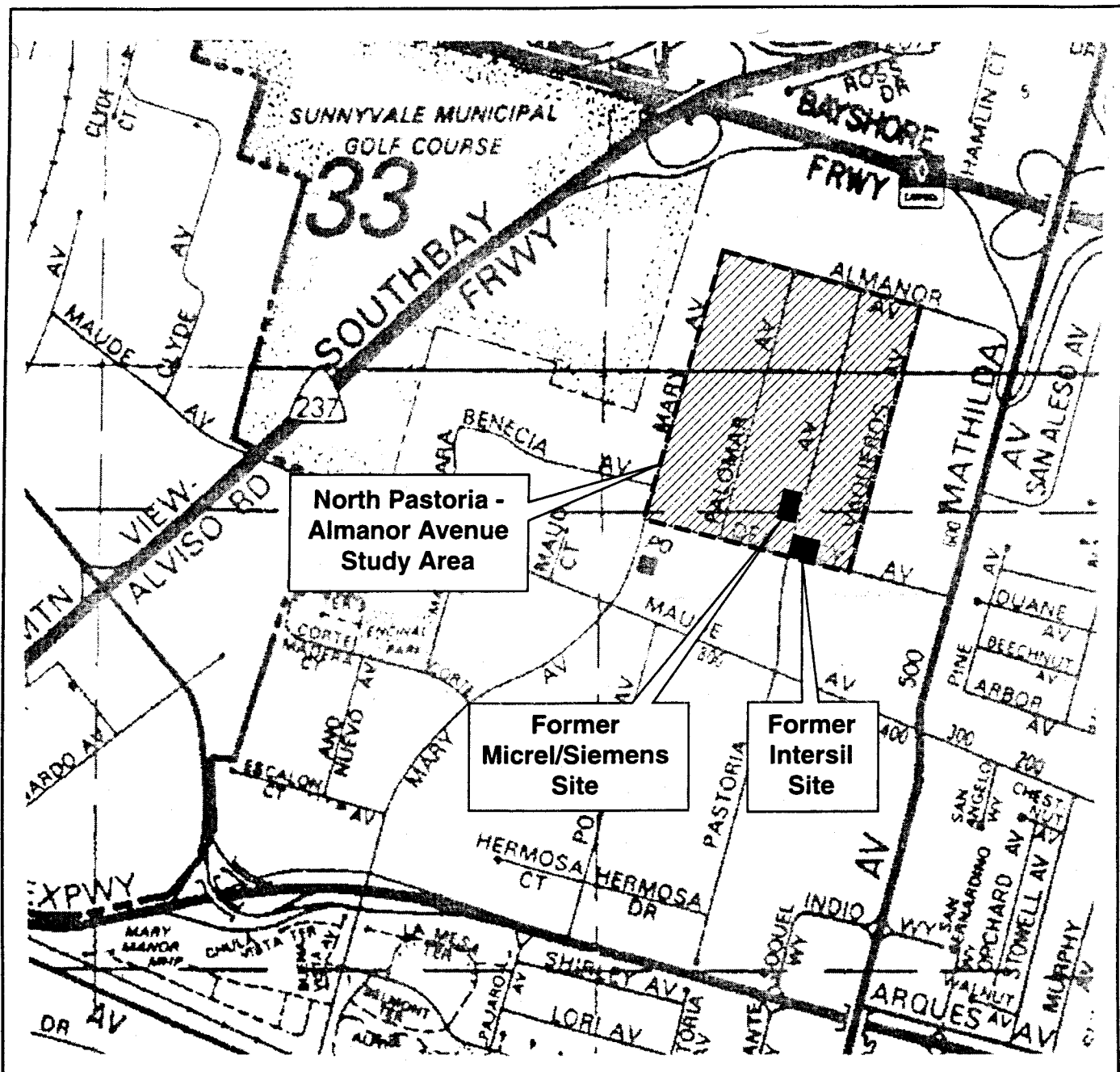

Bruce H. Wolfe
Executive Officer

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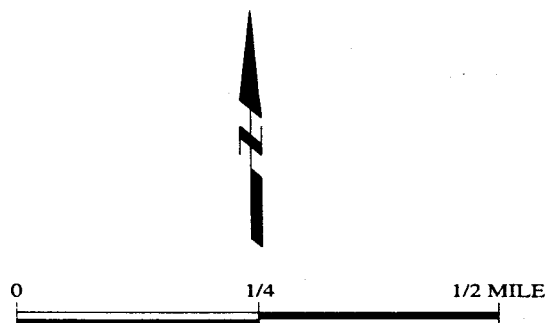
FAILURE TO COMPLY WITH THE REQUIREMENTS OF THIS ORDER MAY SUBJECT YOU TO ENFORCEMENT ACTION, INCLUDING BUT NOT LIMITED TO:
IMPOSITION OF ADMINISTRATIVE CIVIL LIABILITY UNDER WATER CODE SECTIONS 13268 OR 13350, OR REFERRAL TO THE ATTORNEY GENERAL FOR INJUNCTIVE RELIEF OR CIVIL OR CRIMINAL LIABILITY

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Attachments: Site Map
Self-Monitoring Program



© Copyright 1994, Thomas Bros. Map ©
Golden Gate including Marin, San Francisco,
San Mateo and Santa Clara Counties
1995 Edition



Site Vicinity Map

Levine-Fricke-Recon

Figure 1

Project No. 1215

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM FOR:

MICREL, INC.
SIEMENS MICROELECTRONICS INC.,
SMI HOLDING, LLC, AND
PASTORIA LIMITED PARTNERSHIP

for the property located at

639 NORTH PASTORIA AVENUE
SUNNYVALE
SANTA CLARA COUNTY

1. **Authority and Purpose:** The Board requests the technical reports required in this Self-Monitoring Program pursuant to Water Code Sections 13267 and 13304. This Self-Monitoring Program is intended to document compliance with Board Order No. R2-2003-0113 (site cleanup requirements).
2. **Monitoring:** The discharger shall measure groundwater elevations quarterly in all monitoring wells, and shall collect and analyze representative samples of groundwater according to the following table:

Well #	Sampling Frequency	Analyses	Well #	Sampling Frequency	Analyses
LF-6A	SA	8010	LF-58B1	A	8010
		8010	LF-62B1	A	8010
LF-8A	A	8010	LF-45B2*	A	8010
LF-10A	SA	8010	LF-55B2*	A	8010
LF-13A	A	8010	LF-57B2*	A	8010
LF-60B1	SA	8010	PT-5D*	A	8010
LF-63B1	SA	8010	LF-66B2	A	8010

LF-56B1	SA	8010	LF-64B2	SA	8010
PT-5S*	A	8010	PT-2D	SA	8010
PT-6S*	A	8010	LF-61B2	SA	8010
LF-71B1	SA	8010	LF-30B2	A	8010
LF-72B1*	A	8010	LF-46B2	A	8010
LF-44B1*	A	8010	LF-53B2	A	8010
LF-68B1	SA	8010	LF-67B2*	A	8010
LF-52B1	A	8010	LF-2	A	8010
LF-54B1	A	8010			

Key: Q = Quarterly 8010 = EPA Method 8010 or equivalent
SA = Semi-Annually * = Injection Wells
A = Annually

The discharger shall sample any new monitoring or extraction wells quarterly and analyze groundwater samples for the same constituents as shown in the above table. The discharger may propose changes in the above table; any proposed changes are subject to Executive Officer approval. In addition to the groundwater monitoring required in the above table, the Executive Officer may require SMI to take part in monitoring of the offsite commingled groundwater contamination in the North Pastoria-Almanor Avenue Area.

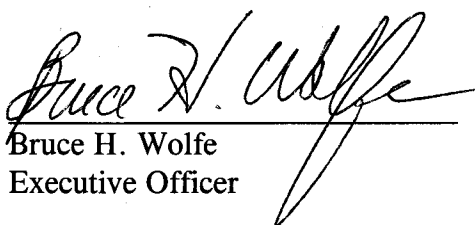
3. **Monitoring Reports:** The discharger shall submit semi-annual monitoring reports to the Board no later than 45 days following the end of the second quarter (e.g. report for first portion of the year due August 15). The discharger shall submit quarterly reports during the implementation of the permanganate injection program no later than 45 days following end of the quarter. The reports shall include:
 - a. **Transmittal Letter:** The transmittal letter shall discuss any violations during the reporting period and actions taken or planned to correct the problem. The letter shall be signed by the discharger's principal executive officer or his/her duly authorized representative, and shall include a statement by the official, under penalty of perjury, that the report is true and correct to the best of the official's knowledge.
 - b. **Groundwater Elevations:** Groundwater elevation data shall be presented in tabular form, and a groundwater elevation map should be prepared for each

monitored water-bearing zone in the annual report. Historical groundwater elevations shall be included in the annual report each year.

- c. **Groundwater Analyses:** Groundwater sampling data shall be presented in tabular form, and an isoconcentration map should be prepared for one or more key contaminants for each monitored water-bearing zone, as appropriate in the annual report. The report shall indicate the analytical method used, detection limits obtained for each reported constituent, and a summary of QA/QC data. Historical groundwater sampling results shall be included in the annual report each year. The report shall describe any significant increases in contaminant concentrations since the last report, and any measures proposed to address the increases. Supporting data, such as lab data sheets, need not be included (however, see record keeping - below).
 - d. **Groundwater Extraction:** If applicable, the report shall include groundwater extraction results in tabular form, for each extraction well and for the site as a whole, expressed in gallons per minute and total groundwater volume for the quarter. The report shall also include contaminant removal results, from groundwater extraction wells and from other remediation systems (e.g. soil vapor extraction), expressed in units of chemical mass per day and mass for the quarter. Historical mass removal results shall be included in the fourth quarterly report each year.
 - e. **Status Report:** The quarterly report shall describe relevant work completed during the reporting period (e.g. site investigation, interim remedial measures) and work planned for the following quarter.
- 5. **Violation Reports:** If the discharger violates requirements in the Site Cleanup Requirements, then the discharger shall notify the Board office by telephone as soon as practicable once the discharger has knowledge of the violation. Board staff may, depending on violation severity, require the discharger to submit a separate technical report on the violation within five working days of telephone notification.
 - 6. **Other Reports:** The discharger shall notify the Board in writing prior to any site activities, such as construction or underground tank removal, which have the potential to cause further migration of contaminants or which would provide new opportunities for site investigation.
 - 7. **Record Keeping:** The discharger or his/her agent shall retain data generated for the above reports, including lab results and QA/QC data, for a minimum of six years after origination and shall make them available to the Board upon request.

8. **SMP Revisions:** Revisions to the Self-Monitoring Program may be ordered by the Executive Officer, either on his/her own initiative or at the request of the discharger. Prior to making SMP revisions, the Executive Officer will consider the burden, including costs, of associated self-monitoring reports relative to the benefits to be obtained from these reports.

I, Bruce H. Wolfe, Executive Officer, hereby certify that this Self-Monitoring Program was adopted by the Board on December 3, 2003.


Bruce H. Wolfe
Executive Officer